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Arabin Pessary -Assuring to Solve the Misery: A Case Series

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Abstract:
Background*: Preterm birth remains a leading cause of perinatal morbidity and mortality. Cervical insufficiency contributes significantly, and its treatment strategies remain debated. The Arabin pessary, a non-invasive device, is emerging as a potential adjunct to cerclage.* ***Methods:*** *We retrospectively reviewed three singleton pregnancies at Sri Ramachandra Hospital, Chennai, who underwent combined cerclage and Arabin pessary placement due to persistent cervical shortening (<25 mm) after cerclage. Outcomes were compared with evidence from existing literature.* ***Results:*** *All three patients delivered at term without major complications. One patient had vaginal discharge, which resolved with conservative management. Neonatal outcomes were favorable.* ***Conclusion:*** *Arabin pessary may provide additional mechanical support in selected women with cervical shortening despite cerclage. While our series suggests safety and potential benefit, larger randomized controlled trials are required to define its role.*
Keywords: *Arabin pessary, Cervical insufficiency, Cervical cerclage, Preterm birth prevention Cervical shortening, Case series, Singleton pregnancy, Maternal-foetal outcomes.*

INTRODUCTION

Preterm birth remains the leading cause of neonatal morbidity and mortality worldwide, accounting for nearly 15 million births annually, with complications contributing to approximately one million neonatal deaths each year【1】. Among the multiple etiologies of preterm birth, cervical insufficiency is a well-recognized and potentially preventable cause of recurrent second-trimester pregnancy loss and early preterm birth【2】.

Traditionally, management options for cervical insufficiency include cervical cerclage, progesterone supplementation, and, more recently, cervical pessaries. Each intervention aims to provide structural or functional support to the cervix, thereby reducing the risk of premature cervical remodeling and membrane prolapse【3,4】.

The Arabin pessary, a soft silicone device, has gained attention as a non-invasive, easily applicable intervention. Its proposed mechanism involves altering the inclination of the cervical canal and redistributing intrauterine pressure away from the internal Os, thereby reducing cervical stress【5】. Several trials and meta-analyses — such as the PECEP trial (2012) and the systematic review by Saccone et al. (2017) — have reported encouraging results, particularly in women with a short cervix, though findings remain inconsistent across populations【6,7】.

The role of the pessary as an adjunct to cerclage, however, is less well defined. Women who develop persistent cervical shortening despite cerclage represent a particularly high-risk group, for whom therapeutic options are limited. A few observational studies (Yinon, 2014; Wolnicki, 2019; Glover, 2020) have suggested improved neonatal outcomes when the pessary is used in combination with cerclage, but large randomized controlled trials are lacking【8–10】.

Given this evidence gap, we present a case series from our institution describing the outcomes of Arabin pessary placement in women with persistent cervical shortening despite cerclage. We also provide a focused review of the literature and summarize current international guideline recommendations.

MATERIALS AND METHODS

- This was a retrospective case series conducted at the Department of Obstetrics and Gynecology, Sri Ramachandra Hospital, Chennai. Informed consent was taken from all participants prior to inclusion.
- **Study Population**: Women were eligible if they:
  - Had a singleton pregnancy,
  - Previously underwent cervical cerclage for short cervix or cervical insufficiency, and
  - Continued to demonstrate cervical shortening (<25 mm) or evidence of funnelling on follow-up transvaginal ultrasound despite cerclage.

➢ **Exclusion criteria included**: multiple gestation, major fetal anomaly, preterm premature rupture of membranes (PPROM), active vaginal bleeding, intrauterine infection, or contraindication to pessary insertion.

➢ **Intervention:**

- Silicone Arabin pessary was placed under sterile conditions with pregnant women in lithotomy position.
- The pessary size was chosen according to cervical length, maternal parity, and provider experience.
- No anesthesia was required, and the procedure was well tolerated.
- Women were advised regarding genital hygiene and were followed up regularly for pessary-related complications.

➢ **Follow-up and Monitoring**

- Transvaginal ultrasound was performed at baseline and subsequently every 2–4 weeks to monitor cervical length, funnelling, and membrane status.
- Women were counseled to report any uterine contractions, vaginal leakage, or discomfort.
- Standard obstetric care was continued, including antenatal corticosteroids if preterm delivery was anticipated.

➢ **Outcomes Assessed:**

- Primary outcome: Gestational age at delivery.
- Secondary outcomes: Neonatal birth weight, neonatal intensive care unit (NICU) admission, perinatal morbidity/mortality, and maternal complications (infection, pessary intolerance, removal issues).

RESULTS

Clinical details of the three cases are summarized in the table below:

PARAMETERS	CASE A	CASE B	CASE C
Age	31 years	29 years	33 years
Gravida	G2P1D1	G2A1	G4P2L1D1A1
Cervical length prior to cerclage	2.6cm (previous history of preterm delivery)	3cm (previous second trimester loss)	2 cm (previous history of second trimester loss)
Gestational age at cerclage	16 weeks	15 weeks+2 days	16 weeks+1 days
Cervical length prior to pessary	2 cm with funnelling	1.1 cm with funnelling	0.7 cm with funnelling
Gestational age at arabin pessary insertion	26 weeks	23 weeks +1 day	20 weeks +5 days
Symptoms	Nil	NIL	Profuse foul smelling discharge prior to removal of pessary and stitch (HVS-normal)
Gestational age at delivery	37week +2 days	37 weeks	37 weeks +4 days
Neonatal outcome	Well term baby	Well term baby	Well term baby

DISCUSSION

Key Findings from Our Series

- All three women with cervical insufficiency and persistent cervical shortening after cerclage reached term after adjunct Arabin pessary use.
- No major complications were recorded; only one patient had mild vaginal discharge, which resolved conservatively.
- Neonatal outcomes were uniformly favorable.

Comparison with Existing Literature.

- **Goya et al., 2012 (PECEP trial):** Pessary alone reduced preterm birth in women with short cervix (<25 mm) [6].
- **Arabin & Alfirevic (2013):** Expert review suggesting pessary may provide additional support in women with progressive cervical shortening despite cerclage [7].
- **Yinon et al., 2014:** Reported benefit of pessary in women with cervical shortening after cerclage [8].
- **Saccone et al., 2017 (meta-analysis):** Highlighted promise of pessary but with heterogeneous trial results [9].
- **Wolnicki et al., 2019 & Glover et al., 2020:** Suggested adjunct pessary with cerclage improved neonatal outcomes and reduced NICU stays [10].
- **Glover et al. (2020):** Retrospective case series; in women with prior cerclage and short cervix (<25 mm), adjunct pessary prolonged pregnancy and improved neonatal outcomes [11].
- **Shor et al. (2021):** Comparative study of cerclage, pessary, progesterone (alone or in combination); outcomes for cerclage + pessary + progesterone were like other groups [12].
- **Jafarzade & Aghayeva (2023):** Retrospective study comparing pessary vs. cerclage; pessary group had fewer preterm births and longer gestation (mean 35.1 vs. 30.8 weeks) [13].
- **Hezelgrave et al., 2024 (SuPPoRT trial):** Found pessary, cerclage, and progesterone all reasonable, with no clear superiority [14].

Proposed Mechanism of Benefit

- Arabin pessary redistributes intrauterine pressure.
- Prevents further cervical shortening and membrane prolapse.
- Provides non-invasive reinforcement in addition to cerclage.

Strengths of Our Report

- Consistent outcomes (all three reached term).
- Demonstrates feasibility and safety of combined approach.
- Adds to the limited pool of literature on adjunctive therapy.

Limitations

- Very small sample size.
- Retrospective, single-center design.
- No control or comparator group.
- Findings cannot be generalized without larger trials.

Future Directions

- Multicenter randomized controlled trials comparing cerclage, pessary, progesterone, and combinations.

- Identification of patient subgroups most likely to benefit (e.g., progressive shortening despite cerclage).
- Exploration of biomarkers and imaging to refine patient selection.

Guideline Recommendations for Cervical Pessary Use

Guideline Body	Recommendation	Year
NICE (UK) [15]	Insufficient evidence to recommend routine use; can consider in trials/high-risk women	2021
ACOG (USA) [16]	Does not recommend pessary as standard; may be considered in research settings	2021
RCOG (UK) [17]	Cerclage or progesterone preferred; pessary role uncertain	2019
WHO [18]	Notes emerging role; further evidence awaited	2015

CONCLUSION

Preterm birth continues to be a devastating outcome for families and a major challenge for clinicians worldwide. Women with cervical insufficiency who continue to show cervical shortening despite cerclage represent one of the most vulnerable groups, often left with limited therapeutic options.

In our experience, the Arabin pessary provided an **additional layer of support that was simple, well tolerated, and reassuring for both the women and their care providers**. All three pregnancies were prolonged to term, and the newborns were healthy—outcomes that translate into meaningful differences for mothers and families who might otherwise face recurrent loss or extreme prematurity.

While the numbers in our series are small, they highlight a practical and safe intervention that can be offered in resource-diverse settings without the need for advanced technology. Our findings echo the optimism from earlier studies but also underline the urgent need for **well-designed, large-scale trials** to define who benefits most and how best to integrate the pessary into routine care.

The Arabin pessary, when used with cerclage, may not yet be a standard of care, but it offers **hope in difficult scenarios**—a low-risk, patient-friendly approach that deserves further exploration. If validated, it could represent a **meaningful step forward in reducing the global burden of preterm birth**.

Abbreviations:

Abbreviation	Full Form
ACOG	American College of Obstetricians and Gynecologists
CL	Cervical Length
GA	Gestational Age
HVS	High Vaginal Swab
NICU	Neonatal Intensive Care Unit
NICE	National Institute for Health and Care Excellence
PECEP trial	Pessary for Preventing Preterm Birth Trial
PPROM	Preterm Premature Rupture of Membranes
PTB	Preterm Birth
RCT	Randomized Controlled Trial
RCOG	Royal College of Obstetricians and Gynaecologists
SuPPoRT trial	Study of Progesterone, Pessary and Cerclage for Preterm Birth Prevention
WHO	World Health Organization

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